

## Marked Up Version Of Amended Claims

This response amends claims 1-4, 8, 9, and 12-17 as follows.

1. (Amended) A packaged device comprising:  
a substrate having conductive traces on a first face and a ball grid array on a second face that is opposite the first face;  
a die having [contacts] metal bumps formed on a major surface of the die, the die being placed so that the [contacts electrically] metal bumps contact the conductive traces on the first face of the substrate, wherein an edge of the die overlies a portion of the ball grid array;  
a dam surrounding the die on the first face of the substrate; and  
an underfill filling of a gap between the die and the substrate and extending from under the die onto the first face of the substrate, wherein the dam confines and shapes an edge of the underfill that overlies a portion of the ball grid array.
2. (Amended) The device of claim 1, wherein the underfill has a wetting angle at the edge of the die that is less than 45° down from a top surface of the die.
3. (Amended) The device of claim 1, wherein the underfill has a wetting angle at the dam that is less than 45° down from a top surface of the dam.
4. (Amended) The device of claim 1, [further comprising a ball grid array on a side of the substrate opposite to the die,] wherein the ball grid array [having] has a pitch that is less than or about equal to one half a separation between the dam and an edge of the die.
8. (Amended) The device of claim 1, wherein the dam comprises a treated region of the substrate [over] on which a bead of the underfill resides, the underfill when liquid having a [high] higher affinity for the treated region than for an adjacent region of the substrate so that the treated region confines and shapes the edge of the underfill.
9. (Amended) A method for packaging an integrated circuit die, comprising:  
attaching the die to a substrate so that metal bumps on the die contact conductive traces on a first face of the substrate [electrically contact contacts on the die] and an edge of

the die overlies a ball grid array on a second face of the substrate; forming a dam on the first face of the substrate; and filling a volume between the die and the substrate and between the die and the dam with an underfill material, wherein an edge of the underfill material overlies the ball grid array.

12. (Amended) The method of claim 9, wherein forming the dam comprises treating a region of the substrate so that the treated region has a [high] higher affinity to the underfill material than does an adjacent region of the substrate, the treated region limiting flow of the underfill material during the filling.

13. (Amended) The method of claim 9, wherein: forming the dam comprises removing a portion of the substrate to [from] form in the substrate a depression with the dam [as] being a wall [surrounding] of the depression; and wherein attaching the die attaches the die in the depression.

14. (Amended) The method of claim 9, wherein filling the volume comprises applying a liquid underfill material into the volume until the underfill material has a wetting angle at the die that is less than  $45^{\circ}$  down from a top surface of the die.

15. (Amended) The [device] method of claim 9, wherein filling the volume comprises applying a liquid underfill material into the volume until the underfill has a wetting angle at the dam that is less than  $45^{\circ}$  down from a top surface of the dam.

16. (Amended) The [device] method of claim 9, wherein forming the dam comprises positioning the dam away from [an] the edge of the die by a separation greater than about twice a pitch of [a] the ball grid array on the substrate.

17. (Amended) The [device] method of claim 9, wherein forming the dam comprises providing the dam with a width that is between one and two times a pitch of [a] the ball grid array on the substrate.